

Abstract of the Disclosure:

A radiation-sensitive coating material, in addition to a base polymer, has a solvent and a radiation-active substance which forms an acid on irradiation by light (including energetic
5 electrons or ions), a fluorescent substance which alters its fluorescence property subject to a change in the acid content of its surroundings. In a process for exposing a substrate coated with the coating material at least one sensor in the exposure chamber of the exposure apparatus measures the
10 intensity of the change in fluorescence spectrum as a function of time during the exposure operation. From the course of intensity at the time of an individual line of the fluorescence spectrum or the intensity integrated over a wavelength interval it is possible to determine the endpoint
15 of the exposure operation by way of electronic algorithms. Deviations from experimentally determined ideal curves of the intensity course provide information on erroneous functions in the course of coating material application and exposure.